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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/623,983

07/21/2003

Zhijian Xie

3-4

5529

7590

03/25/2004

Ryan, Mason & Lewis, LLP
90 Forest Avenue
Locust Valley, NY 11560

EXAMINER

ABRAHAM, FETSUM

ART UNIT

PAPER NUMBER

2826

DATE MAILED: 03/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/623,983

Applicant(s)

XIE ET AL.

Examiner

Fetsum Abraham

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Claims rejection

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the claimed shielding layer and its physical relationship with other device elements must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Furthermore, there is no vertical DMOD in the drawings (as in claim 9) for proper examination and the shielding layer (as in claim 10) must be shown in the drawings first for proper examination to continue on the claimed device.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-18 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Said first source/drain and second source/drain regions in the claims is not specifically addressed to imply a single or two transistor/s. If the structure is a single device, the expressions should change to read first source and first drain or source and drain. Based on the drawings, it so seems like the intent is to address a single power MOSFET.

Furthermore, there is no vertical DMOD in the drawings (as in claim 9) for proper examination and the shielding layer (as in claim 10) must be shown in the drawings first for proper examination to continue on the claimed device.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-18, so far as understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Morikawa et al (6,707,102).

As for claims 1,6-8,14,16 the patent discloses a diffused power LDMOS in the front page composed of source (5), drain (9), a gate (3) formed on the surface of the substrate between the source and drain regions, and a shielding layer that does not overlap with the gate on the substrate between the gate and the drain regions and specifically over the offset region of the drain (see abstract). Although the claim language is not clear as indicated above, it would have been obvious to one skilled in the art to conclude the claimed invention as a duplicate of the prior art based on structural correlation between the two structural.

As for claims 2-4,15, the shielding layer is connected to the offset region of the drain through a conductive trace via a hole and insulated from the substrate (see abstract). As for claim 4, multi level metalization is common in the art specifically when thick interlayer insulation is deposited on the substrate. Therefore, it would have been

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obvious to use multiple metal layers for contact, since the method avoids the difficulty of accessing a node in small devices.

As for claim 5, the most common insulator in the art oxides.

As for claims 11,13, the interconnection of the shielding layer through a via signifies the claimed plug in claim 11.

As for claims 12,18, there is a second gate layer on the gate electrode in the prior art and that configuration reduces gate resistance.

As for claim 17, the overall structure suggests a capacitor formed between the gate and the overall shielding layer attached to the drain but the capacitance is low because of the wide gap between the two elements.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fetsum Abraham whose telephone number is: 571-272-1911. The examiner can normally be reached on 8:00 - 18:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached at 571-272-1915.

A handwritten signature in black ink, appearing to read 'Fetsum Abraham', with a long horizontal stroke extending to the right.

Fetsum Abraham

3/19/04